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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i> | | | | Application Number | |
| | | | | Filing Date | |
| | | | | First Named Inventor | Hoshang Subawalla, et al. |
| | | | | Art Unit | |
| | | | | Examiner Name | |
| Sheet | 1 | Of | 3 | Attorney Docket Number | 06413P USA |

| U. S. PATENT DOCUMENTS | | | | | |
|------------------------|--------------------------|--|--------------------------------|--|---|
| Examiner Initials* | Cite No. ¹ | Document Number | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
| | | Number-Kind Code ² (if known) | | | |
| | | US- 2002/0112747 A1 | 8/22/2002 | J. P. DeYoung, et al. | |
| | | US- 2002/0088477 A1 | 7/11/2002 | J. M. Cotte, et al. | |
| | | US- 2002/0055323 A1 | 05/09/2002 | McClain et al. | |
| | | US- 2002/0026729 A1 | 03/07/2002 | Bergman et al. | |
| | | US- 2003/0003762 A1 | 1/2/2003 | J. M. Cotte, et al. | |
| | | US- 4,944,837 | 7/31/1990 | M. Nishikawa, et al. | |
| | | US- 4,992,308 | 2/12/1991 | A. K. Sunol | |
| | | US- 5,013,366 | 5/7/1991 | D. P. Jackson, et al. | |
| | | US- 5,158,704 | 10/27/1992 | J. L. Fulton, et al. | |
| | | US- 5,236,602 | 8/17/1993 | D. P. Jackson | |
| | | US- 5,266,205 | 11/30/1993 | J. L. Fulton, et al. | |
| | | US- 5,355,901 | 10/18/1994 | R. J. Mielnik, et al. | |
| | | US- 5,370,740 | 12/06/1994 | Chao et al. | |
| | | US- 5,377,705 | 1/3/1995 | C. W. Smith, Jr., et al. | |
| | | US- 5,417,768 | 5/23/1995 | C. W. Smith, Jr., et al. | |
| | | US- 5,494,526 | 2/27/1996 | A. P. Paranjpe | |
| | | US- 5,522,938 | 6/4/1996 | S. O'Brien | |
| | | US- 5,533,538 | 7/9/1996 | M. C. Marshall | |
| | | US- 5,733,964 | 3/31/1998 | K. P. Johnston, et al. | |
| | | US- 5,783,082 | 7/21/1998 | J. M. DeSimone, et al. | |
| | | US- 5,789,505 | 8/4/1998 | S. P. Wilkinson, et al. | |
| | | US- 5,866,004 | 02/02/1999 | Houck et al. | |
| | | US- 5,866,005 | 2/2/1999 | J. M. DeSimone, et al. | |
| | | US- 5,868,856 | 2/9/1999 | M. A. Douglas, et al. | |
| | | US- 5,872,257 | 2/16/1999 | E. J. Beckman, et al. | |
| | | US- 5,873,948 | 2/23/1999 | J-J Kim | |
| | | US- 5,908,510 | 6/1/1999 | K. J. McCullough, et al. | |
| | | US- 5,944,996 | 8/31/1999 | J. M. DeSimone, et al. | |
| | | US- 5,976,264 | 11/2/1999 | K. J. McCullough, et al. | |
| | | US- 6,024,801 | 2/15/2000 | R. M. Wallace, et al. | |
| | | US- 6,113,708 | 9/5/2000 | G. B. Hopple, et al. | |
| | | US- 6,176,895 B1 | 1/23/2001 | J. M. DeSimone, et al. | |
| | | US- 6,224,774 B1 | 5/1/2001 | J. M. DeSimone, et al. | |
| | | US- 6,228,563 B1 | 5/8/2001 | V. Starov, et al. | |
| | | US- 6,240,936 B1 | 6/5/2001 | J. M. DeSimone, et al. | |
| | | US- 6,242,165 B1 | 6/5/2001 | B. A. Vaartstra | |
| | | US- 6,270,531 B1 | 8/7/2001 | J. P. DeYoung, et al. | |
| | | US- 6,277,753 B1 | 8/21/2001 | W. H. Mullee, et al. | |

| U. S. PATENT DOCUMENTS | | | | | |
|------------------------|-----------------------|--|--------------------------------|---|---|
| Examiner Initials* | Cite No. ¹ | Document Number | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
| | | Number-Kind Code ² (if known) | | | |
| | | US- 6,286,231 | 09/11/2001 | Bergman et al. | |
| | | US- 6,297,206 B2 | 10/2/2001 | T. J. Romack, et al. | |
| | | US- 6,306,564 B1 | 10/23/2001 | W. H. Mullee | |
| | | US- 6,331,487 B2 | 12/18/2001 | R. Koch | |
| | | US- 6,333,268 B1 | 12/25/2001 | V. Starov, et al. | |
| | | US- 6,344,243 B1 | 2/5/2002 | J. B. McClain, et al. | |
| | | US- 6,357,142 | 03/19/2002 | Bergman t al. | |
| | | US- 6,403,544 B1 | 6/11/2002 | L. B. Davenhall, et al. | |
| | | US- 6,454,869 B1 | 9/24/2002 | J. M. Cotte, et al. | |
| | | US- 6,500,605 B1 | 12/31/2002 | W. H. Mullee, et al. | |
| | | US- 6,506,259 B1 | 1/14/2003 | T. J. Romack, et al. | |

| FOREIGN PATENT DOCUMENTS | | | | | | |
|--------------------------|-----------------------|---|--------------------------------|---|---|----------------|
| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
| | | Country Code ³ Number ⁴ Kind Code ⁵ (if known) | | | | |
| | | EP 0 836 895 A2 | 4/22/1998 | Europe | | ✓ |
| | | WO 00/16264 | 3/23/2000 | World | | ✓ |
| | | WO 00/26421 | 5/11/2000 | World | | ✓ |
| | | WO 01/21616 | 3/29/2001 | World | | ✓ |
| | | WO 01/32323 A1 | 5/10/2001 | World | | ✓ |
| | | WO 01/33613 A2 | 5/10/2001 | World | | ✓ |
| | | WO 01/60534 A1 | 8/23/2001 | World | | |
| | | WO 01/87505 | 11/22/2001 | World | | ✓ |
| | | WO 02/11191 | 2/7/2002 | World | | ✓ |
| | | WO 02/15251 A1 | 2/21/2002 | World | | ✓ |
| | | WO 02/66176 | 8/29/2002 | World | | ✓ |
| | | WO 84/02291 | 6/21/1984 | World | | ✓ |
| | | WO 99/49996 | 10/7/1999 | World | | ✓ |
| | | WO 99/49998 | 10/7/1999 | World | | ✓ |
| | | WO 99/61177 | 12/2/1999 | World | | ✓ |

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| NON PATENT LITERATURE DOCUMENTS | | | |
|---------------------------------|-----------------------|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
| | | K. Jackson, et al., "Microemulsions in Supercritical Hydrochlorofluorocarbons," <i>Langmuir</i> 12(22), pp. 5289-5295 (1996). | |
| | | M. A. Biberger, et al., "Photoresist and Photoresist Residue Removal with Supercritical CO ₂ – A Novel Approach to Cleaning Wafers," <i>Semiconductor Fabtech</i> , 12 th Ed., pp. 239-243. | |
| | | D. Beery, et al., "Post Etch Residue Removal: Novel Dry Clean Technology Using Densified Fluid Cleaning (DFC)," <i>IITC</i> 99, pp. 140-142. | |
| | | J. Liu, et al., "Investigation of Nonionic Surfactant Dynol-604 Based Reverse Microemulsions Formed in Supercritical Carbon Dioxide," <i>Langmuir</i> 17, pp. 8040-8043 (2001). | |
| | | K. Jackson, et al., "Surfactants and Microemulsions in Supercritical Fluids," <i>Supercritical Fluid Cleaning</i> , pp. 87- 120. | |
| | | R. A. Bowling, et al., "Future Challenges for Cleaning in Advanced Microelectronics," <i>Texas Instruments slides</i> . | |
| | | H. J. Martinez, et al., "SCCO ₂ – Is it an Enabling Technology for the 90nm Node and Beyond?" <i>International SeMatech slides</i> (2002). | |
| | | S. Pawat, "Novel Wafer Clean Technologies," <i>International SeMatech slides</i> (2001). | |
| | | T. Hurd, et al., "scCO ₂ Cleaning Applications in Porous ULK Processing," <i>Texas Instruments slides</i> . | |
| | | G. L. Weibel, et al., "Supercritical CO ₂ in Microelectronics Processing," <i>Cornell University slides</i> . | |
| | | J. B. Rubin, et al., "Precision Cleaning of Semiconductor Surfaces Using Carbon Dioxide-Based Fluids," <i>Clarkson University</i> , pp. 1-26. | |
| | | G. Weibel, "Supercritical CO ₂ for Semiconductor Applications," <i>Semiconductor Equipment and Materials International</i> (2001). | |
| | | J. Malloy, et al., "GC Analysis of Solvent Wash Samples," <i>Air Products and Chemicals, Inc.</i> (2003). | |
| | | Carpenter, B.A. et al., <i>Supercritical Fluid Extraction and Chromatography</i> , <i>ACS Symposium Series</i> 366, April 5-10, 1987, Denver, CO | |
| | | Devittori, C. et al., Article at http://mpi.powerultrasonics.com/cleaning-co2.html , "Multifrequency ultrasonic Actuators with Special Application to Ultrasonic Cleaning in Liquid and Supercritical CO ₂ " | |
| | | Enokida, Y. et al., "Ultrasonic-Enhanced Dissolution of UO ₂ in Supercritical CO ₂ Containing a CO ₂ -Phylic Complexant of Tri-n-Butylphosphate and Nitric Acid", <i>Industrial & Engineering Chemistry Research</i> , (2002), 41 (9), pp.2282-2286 | |

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